

Reference Document(s):

1. "Final Decontamination and Radiological Survey of Building T028"; Rockwell International, Rocketdyne doc. number N704SRR990033.
2. Letter to Ed Bailey July 6, 1995.

Survey Personnel:

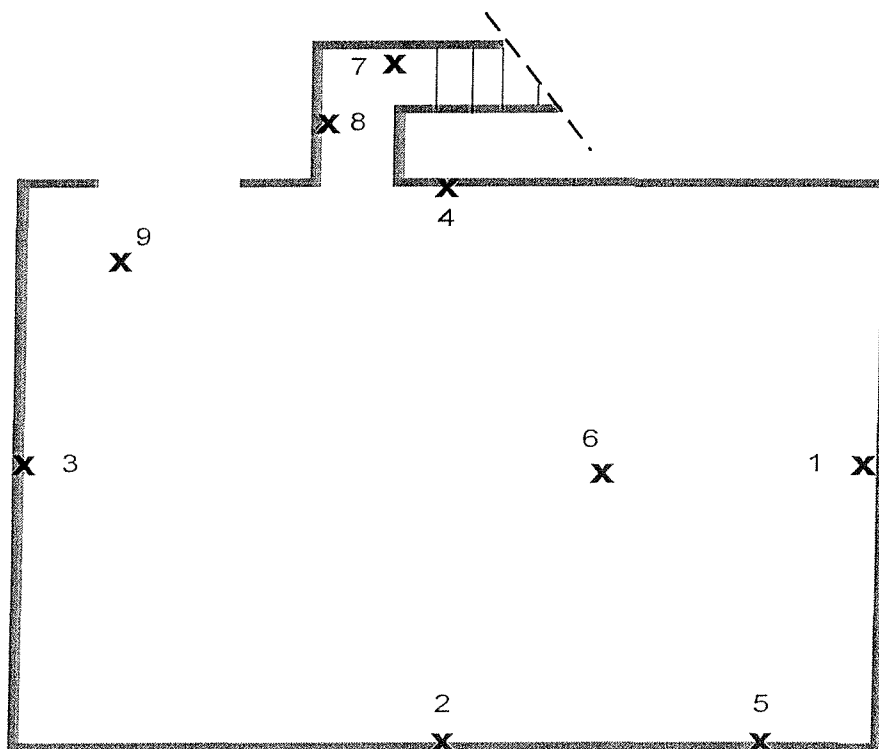
Steve Hsu, Jeff Wong, Roger Lupo, Mike Montes.

Survey Instruments:

1. Ludlum M-19 μ R dose rate meter s/n 42956 calibration date 12/14/94
2. Eberline ESP-2 w/ Ludlum 44-9 pancake probe s/n 00406 / 043314 calibration date 12/14/94

Survey Report:

Visual inspection of the site verified the above ground structure of Building T028 had been removed leaving the floor slab. The basement area, Room B101, was stripped of all equipment and fixtures. Background measurements were made approximately 50 yards from the remaining structure outside the basement room (see table 1). A general scan of the main floor using a dose rate meter gave readings of 8 μ R/hr to 39 μ R/hr, the range of readings can be attributed to the close proximity of the Radioactive Materials Handling Facility (RMHF). The survey continued inside room B101 with a 100% scan, readings of 8-10 μ R/hr were obtained. Contact readings using a G-M pancake probe (Eberline ESP-2 w/ Ludlum 44-9 probe) were taken at nine (9) locations in Room B101 as shown below, sample wipes were taken of the floor and walls surrounding the area previously occupied by the uranium melting facility. The contact readings are listed in Table 2 and the wipe sample results are listed in Table 3. Table 4 contains the calculated results for the contact measurements in terms of disintegrations per minute per 100 square centimeter (dpm/cm²) for comparison with the accepted release levels.



Plot Plan for Building T028 Basement Room B101
x - indicate contact measurement locations

Table 1: Background Measurements

Meter	Reading
Ludlum M-19 Rate meter ($\mu\text{R/hr}$)	8 $\mu\text{R/hr}$ outside basement area
Eberline ESP-2 w/ Ludlum 44-9 G-M pancake probe	50 cpm outside basement area

Table 2: Contact Survey Data

Location	cpm (ESP-2 w/ 44-9)	Wipe ID
1 - wall 1.5 meter up	51	2
2 - wall 1.5 meter up	55	
3 - wall 1.5 meter up	64	
4 - wall 1.5 meter up	51	
5 - wall 1 meter up	56	3
6 - floor	55	4
7 - hallway floor	64	
8 - wall 1.5 meter up	42	
9 - floor	54	31

Table 3: Wipe Sample Laboratory Results:

Sample Id	Location Description	Site Reading	Laboratory Result pCi/wipe	Laboratory Result* dpm/100cm ²
31 - R70743	floor near roll-up door (9 - floor)	54 cpm	no alpha, beta or gamma detected	
2 - R70743	1 - wall 1.5 meter up	51 cpm	no gamma detected Gross Alpha 2.05 \pm 0.37 Gross Beta 2.16 \pm 0.37	Gross Alpha 4.55 \pm 0.82 Gross Beta 5.77 \pm 0.82
3 - R70743	5 - wall 1 meter up	56 cpm	no alpha, beta or gamma detected	
4 - R70743	6 - floor	55 cpm	no alpha, beta or gamma detected	

* Wipe sample 2-R70743 gave a positive indication of radioactive material. The values reported are in pCi/wipe, these units are equivalent to dpm/100cm² units by multiplying pCi/wipe with a factor of 2.22.

Table 4: Contact Measurement Calculated Results (dpm/100cm²)

Location	Gross cpm (ESP-2 w/ 44-9)	Net cpm* cpm - bkgd.	Calculated* dpm/100cm ²
1	51	1	30.3
2	55	5	151.5
3	64	14	424.2
4	51	1	30.3
5	56	6	181.8
6	55	5	151.5
7	64	14	424.2
8	42	-8	-60.6
9	54	4	121.2

* Negative values indicate calculated numbers associated with measured levels that are below the background levels for the site.

Summary:

The survey results were less than twice background for the basement structure and were higher than the established background for the surrounding area. The higher levels can be attributed to the close proximity of Building T028 to the RMHF, located to the North-East of Building T028. The results of the contact measurements and the laboratory analysis of the samples collected for Building T028 have activity levels below the acceptable surface contamination levels listed in DECON-1 (Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use) of 5000 dpm α /100cm² for surface readings and of 1000 dpm α /100cm² for removable activity and 5000 dpm $\beta\gamma$ /100cm² for surface readings and of 1000 dpm $\beta\gamma$ /100cm² for removable activity.

Prepared by: Roger K. Lupo

Date: 11/20/95

RADIOCHEMICAL ANALYSIS REPORT

State of California-Department of Health Services
Sanitation & Radiation Laboratory
2151 Berkeley Way
Berkeley, CA 94704

Date & Time Sampled
September 14, 1995

Serial No.
R 70743

Date Received
September 15, 1995

Lab No.
9873-95

Collector's Name: Steve Y. Hsu/Mike Montes

Send Report To: Stephen Y. Hsu

Agency Address: Radiologic Health Branch
601 N. 7th. Strret
Sacramento, CA

Agency Address: Radiologic Health Branch
601 N. 7th. Strret
Sacramento, Ca

Phone No.: 916-322-4797

Phone No.: 8-492-4797

Sampling Point: ETEC, B028

Location of Sample(s): Wipes # 31,2,3,4,5

System No. (ODW):

☒ RHB () ☐ ODW () ☐ EMB () ☐ RWQCB ()

☐ FDB () ☐ DWR () ☐ CDFG () ☐ County HD

☐ Other (specify):

Type of Sample

☐ Air Filters: Meter Date/Time

☐ Drinking Water

☐ Sewage/Sludge

☐ Milk

Finishing: _____ / _____

☐ Groundwater

☐ Sewage/Effluent

☐ Fish/Shellfish

Starting: _____ / _____

☐ Surface Water

☐ Soil/Sediment

☐ NPP Influent/Eff

Net (M³): _____

☐ Sea Water

☐ Vegetation

☐ Seaweed

☐ Air Charcoal Cartridge

☐ Rain/Snow

☒ Wipes (5)

☐ Composites

☐ Radon Canister

☐ Other (Specify)

The analyses were performed using the referenced methods. Precision criteria for these methods were determined to be acceptable.

<u>R No./SRL No.</u>	<u>Sample Identification</u>	<u>Analysis</u>	<u>Results¹ ± CE²</u>	<u>MDA₉₅³</u>	<u>Units</u>
70743/9873	ETEC, B028, #31,2,3,4,5	Gamma ⁴	N. D.	----	pCi/5 wipes ⁵
70743/9873	ETEC, B028, #31	Gross Alpha ⁶	N. D.	0.20	pCi/wipe
		Gross Beta ⁶	N. D.	0.41	pCi/wipe
70743/9873	ETEC, B028, #2	Gross Alpha ⁶	2.05 ± 0.37	0.20	pCi/wipe
		Gross Beta ⁶	2.16 ± 0.37	0.41	pCi/wipe
70743/9873	ETEC, B028, #3	Gross Alpha ⁶	N. D.	0.20	pCi/wipe
		Gross Beta ⁶	N. D.	0.41	pCi/wipe
70743/9873	ETEC, B028, #4	Gross Alpha ⁶	N. D.	0.20	pCi/wipe
		Gross Beta ⁶	N. D.	0.41	pCi/wipe
70743/9873	ETEC, B028, #5	Gross Alpha ⁶	N. D.	0.20	pCi/wipe
		Gross Beta ⁶	N. D.	0.41	pCi/wipe

- Results less than the Minimum Detectable Activity (MDA) are reported as not detected (N. D.).
- CE is the counting error at the 95% confidence level as defined in Prescribed Procedures for Measurement of Radioactivity in Drinking Water, EPA-600/4-80-032, August 1980.
- MDA₉₅ is the sample specific minimum detectable activity at the 95% confidence level, which is the LLD₉₅ divided by 2.22, the efficiency, and the yield, and may include factors for abundance, decay, and ingrowth, dependent on the particular radionuclide. LLD₉₅ is defined in section 7010G, Standard Methods for the Examination of Water and Wastewater, American Water Works Association, 18th ed., 1992, where S_b is the square root of the instrument background count rate.
- HASL-300, 27th Ed., Vol. 1, Rev. 2/92, Method 4.5.2.3, Environmental Measurements Laboratory, U.S. Department of Energy, New York, NY.
- All samples (5wipes) analyzed as a single batch.
- Direct analysis using DOE RP710, DOE Methods for Evaluating Environmental and Waste Management Samples, DOE/EM-0089T, Rev 1, March 1993.

Violeta M. Sulman
Analyst/Radiochemist

10-23-95
Date

Conrad J. Wang
Lead Person/Supervisor

10/23/95
Date